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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SIMON C. WATT and LUC ORION

Appeal 2008-5801
Application 10/714,483
Technology Center 2100

Oral Hearing Held: March 18, 2009

Before HOWARD B. BLANKENSHIP, JAY P. LUCAS, and THU A. DANG, Administrative Patent Judges

ON BEHALF OF THE APPELLANTS:

STANLEY C. SPOONER, ESQ.
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON VA 22203

The above-entitled matter came on for hearing on Wednesday, March 18, 2009, commencing at 9:00 a.m., at The U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Victor Lindsay.

MS. BOBO-ALLEN: Calendar No. 24, Appeal No. 2008-5801. Mr. Spooner.

MR. SPOONER: Good morning.

JUDGE BLANKENSHIP: Good morning, Mr. Spooner. You have 20 minutes, and you can begin when you like.

MR. SPOONER: Okay. I'm here representing the assignee of record, ARM Limited. The problem that this invention is directed to is where you have confidential data on a computer system, you generally have secure domains and nonsecure domains. When you're monitoring data processes to find faults that may occur, you, you use debug and trace programs conventionally to determine if there is a problem. When such programs are applied to computers having secure and nonsecure domains, it's possible that there could be confidential data leakage from the secure domain over to the nonsecure. So that's the problem that we're addressing here in this, in this invention.

Claims are fairly straightforward. The independent method claim 1 is sort of mirrored in the processor claim 20 language. Claim 1 says basically three steps or, or four steps actually, controllably monitoring the processor in each of the two domains, in other words, in both the secure and the nonsecure domains. Setting at least one control value relating to a condition indicative of whether said monitoring function is allowable in the first domain. So the control value is set to determine -- and, and it's based on whether the monitoring function is allowable in the first domain. Then you have two steps, allowing initiation and not allowing initiation. You allow initiation of the monitoring function in the domain if the condition is present -- when the condition is present if its control value, related control value indicates that the monitoring function is allowable. You don't allow initiation of the monitoring function in that domain when the condition is

present and the related control value indicates that the monitoring function is not allowable. So the control value is the thing that, that sets this.

JUDGE LUCAS: I'm sorry. The monitoring is done in the secure or the nonsecure domain?

MR. SPOONER: The, the last two clauses of the claim relate to the first domain. That, that presumably is the secure domain. It's not specified. It just says first and second domain, but that's presumably the, the secure.

So those two allowing steps are, are you allow initiation if the related control value indicates that monitoring is allowable or if the related control value indicates that monitoring is not allowable.

And so an issue came up in the, in the appeal brief and, and you'll note that is what the Examiner considers the control value to be disclosed in the Angelo reference. Just a little bit about the two references. Both of them deal with data processors. There's no doubt. The Alverson reference teaches data processing that operates without interrupt notification. So whenever there is an interrupt, there isn't necessarily notification of that interrupt so any -- this monitoring stuff isn't really going to occur. The Examiner admits that Alverson fails to disclose particular information about monitoring. In fact, we have challenged him all the way through prosecution to point out where it shows these features of monitoring or setting, and he can't or he hasn't. But his admission that it fails to disclose particular information about monitoring is particularly telling.

By the way, if you go back and look at the claim, if it doesn't teach the monitoring, how in the world can it teach the setting step which is, which is based upon what you -- how you want to monitor?

Also, Alverson -- the Examiner doesn't allege that Alverson contains any teaching about the, the not allowing initiation step. So those are three features that just aren't in Alverson that are in -- that are positively recited in the claim.

All right, look at Angelo. The Examiner directs the attention to column 7 beginning at line 58. However, the Examiner doesn't indicate any teaching in Angelo which he contends discloses the, the controllably monitoring step or the setting, a control value step. But the Examiner does in his answer, he does -- we were speculating that, that the Examiner might have meant the SMI signal in Angelo to be the equivalent of the control value, and the Examiner was kind enough in the answers to confirm that, that yes indeed our speculation was correct.

However, he, he doesn't -- so Angelo -- the, the problem is that SMI is an activation signal. It's a yes or no. It's a, it's a go, no-go signal. It's not set. It's applied when you want to do something, when you want that particular thing done, but it's not set. It's not a value of any sort. Clearly, Angelo -- he doesn't allege that Angelo teaches the not allowing feature. So again, we have three features of the claim, three of the four features of claim 1, that isn't -- that aren't disclosed anywhere in Angelo.

Now the Examiner comes back and, and he says that it's inherent that Angelo teaches that a storage element is an inherent aspect of the invention, because the SMI signal must be stored somewhere. He's actually wrong there, because the SMI is not a storage signal. SMI is merely a signal that goes high or low to cause actions to occur but is never stored anywhere. So his argument that it's stored somewhere just is unsupported by the document itself.

All right, so let's turn to the Examiner's arguments. He, he suggests that all of the steps are shown in the --

JUDGE LUCAS: I'm, I'm sorry. Where did it say that your control value is stored in the claim?

JUDGE BLANKENSHIP: We're talking about claim 1 and 20 I think and --

MR. SPOONER: And, and in claim 1, the second subparagraph, setting at least one control value, so you set that value, set at least one control value relating to a condition. That's the condition and being indicative of whether the monitoring function is allowable in the first domain, your secure domain.

JUDGE BLANKENSHIP: Well, claim 20 requires the storage element in --

MR. SPOONER: Excuse me?

JUDGE BLANKENSHIP: Claim 20 requires a storage element.

MR. SPOONER: Yes, yes, sir, but that's --

JUDGE BLANKENSHIP: I think the Examiner's point is that when this interrupt is set that the bit to set the interrupt has to be stored somewhere, at least momentarily, like a bit in a register.

MR. SPOONER: But it's not set and it's not stored. You, you put the line high to activate it. You put it low to deactivate it. It's never stored anywhere.

JUDGE BLANKENSHIP: Well, it doesn't activate or deactivate itself, so something in the system has to set it?

MR. SPOONER: That's right, it's set, but it's not stored. You don't store that information anywhere. It's a yes or a no. Turn on the SMI or turn off SMI.

JUDGE BLANKENSHIP: What turns it on?

MR. SPOONER: You may have a transistor that is activated by another signal, but it's not stored in that transistor. It just goes high. It's a signal that goes high.

JUDGE BLANKENSHIP: Well, the transistor -- what turns on the transistor?

MR. SPOONER: A signal from somewhere else in data process, but it's not stored.

JUDGE BLANKENSHIP: That just appears out of --

MR. SPOONER: Oh, no, it's responsive to this, this monitoring function that's in claim 1. You're controllably monitoring the process or operating in the two domains, and then you set at least one control value, so you do have a control value that is stored. In, in Angelo, he talks about in that column 7 SMIs. He says up at line 46, 7, originally SMIs were power management interrupts devised by Intel for portable systems. Portable computers draw power to maximize battery life, and SMI is typically asserted. In the data processing world when they say something is asserted, that means it is applied. It's, it's a yes or no. It's a high or low on a signal line that activates something. So you have, you have a series of steps, and this particular step is asserted, is activated, but it's not stored anywhere.

JUDGE BLANKENSHIP: Well, again something has to activate the signal line.

MR. SPOONER: Sure, and, and that can be another --

JUDGE BLANKENSHIP: So that's usually a register or, or something in memory that --

MR. SPOONER: It, it doesn't have -- no, not at all.

JUDGE BLANKENSHIP: That sets from a zero to a 1.

MR. SPOONER: There is a sequence of steps that are taking place in this computer, data processor, and one of those steps says assert or do not assert, and you evaluate all of the inputs, decide whether to assert or not assert, and those may all go into an adder, and if they're all present, then the adder puts an output. Its output is assert or if it -- if they don't have all the necessary inputs, it doesn't produce that output, so it produces a low. But it produces either a high or a low output, and that's the assertion of the SMI. That's the yes or no that says go or not go. And that's, that's all that Angelo is talking about.

I mean look at the next paragraph beginning at line 56. SMIs are asserted by either an SMI timer, by a system request or by other means. But it's not, it's not stored at all. It's a yes or no. It's, it's a do this or don't do this, but you don't store it. It's just the consequence of all of the adders and NAND gates and whatever upstream that conclude that you want to assert this SMI, this system management interrupt.

Okay, so, so that's the -- so the Examiner is just, just incorrect in that assertion, but that's really tangential to the, to the whole issue, because the Examiner doesn't meet his burden of showing us where these features are. He talks about things that you could confuse to be features of the invention, but for example, he says -- he concludes that the SMI is the control value. Well, based upon his admission that that's the control -- that he thinks that's the control value of the claim, then the Angelo reference always monitors. It

has to. You can never have it not, not monitoring and, and he actually admits that in the appeal brief -- or excuse me, the Examiner's Answer on page 17 down at section D there, the last two lines on that page. He says the Examiner agrees that the monitoring is always allowed when the SMI is asserted, and the processor enters into SMM. If it's always asserted, if the control value is the SMI, and SMI is always asserted, how can you have a control value that says it's not asserted, not allowing initiation of the monitoring function?

JUDGE BLANKENSHIP: Well, it doesn't say that SMI is always asserted.

MR. SPOONER: No, he says. He says it's always allowed. Monitoring is always allowed when SMI is asserted.

JUDGE BLANKENSHIP: Right.

MR. SPOONER: So -- and then he says but somehow monitoring isn't allowed when the SMI is asserted. If SMI is the control value --

JUDGE BLANKENSHIP: He says when SMI is not asserted, page 18 of the answer.

MR. SPOONER: When is SMI not asserted? SMI, whenever you want this, this interrupt, this interrupt to assess the situation, you assert the SMI by the timer or the system request or the other means. So it's always --

JUDGE BLANKENSHIP: Well, you said -- well, it's not always asserted. It's asserted or it's not.

MR. SPOONER: That's our claim. That's our invention. Angelo, by virtue of the fact that the Examiner suggests that SMI is always allowed --

JUDGE BLANKENSHIP: No, he says that monitoring is always allowed.

MR. SPOONER: Monitoring is always allowed, exactly.

JUDGE BLANKENSHIP: When SMI is asserted.

MR. SPOONER: Right, and SMI is asserted whenever you have an interrupt.

JUDGE LUCAS: Okay, I think we understand his point. I think there's other things that he may -- we understand your point, your point of view on this.

MR. SPOONER: Oh, okay. All right. I, I didn't want to get too bogged down in it but -- so, so basically what we have is, as pointed out in our briefs, we have three of the four method steps that aren't shown in either Alverson or Angelo. So firstly, there is no prima facie case of obviousness, because he's got to show those features to be disclosed in the prior art. Secondly, KSR requires there to be some explicit analysis by the Examiner with respect to his rationale for picking and choosing elements and then combining them in the manner of Applicant's claims. I don't think he's done that. He's just merely drawn a conclusion that because these are vaguely related to data processors and interrupts, it would be obvious to combine these somehow.

And finally, his language in the, in the Angelo -- with reference to the Angelo reference and the fact that it teaches that monitoring is always allowed whenever it's asserted, whenever the SMI is asserted, that clearly leads away from our claim requirement that the control value, i.e. the SMI, sometimes says it's asserted and sometimes says it's not. Because he concludes that the control value is SMI when SMI is asserted, monitoring is always allowed. So he teaches away from this controllably monitoring

something. And so even if there were a prima facie case of obviousness, that teaching away we believe rebuts the prima facie case.

Any questions? Any other questions? Are, are we all as confused as I am?

JUDGE LUCAS: No, no, I understand your point of view.

MR. SPOONER: Okay. All right.

(Whereupon, the hearing concluded on March 18, 2009.)